PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Thomas M. BREUEL et al. Group Art Unit: 2178

Application No.: 10/064,892 Examiner: C. PAULA

Filed: August 27, 2002 Docket No.: 111744

For: METHOD AND SYSTEM FOR DOCUMENT IMAGE LAYOUT DECONSTRUCTION AND REDISPLAY SYSTEM

REPLY BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following remarks are directed to the new points of argument raised in the Examiner's Answer dated October 30, 2008.

Claims 1 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 7,028,258 to Thacker et al. (hereinafter "Thacker") in view of U.S. Patent No. 6,895,552 to Balabanovic et al. (hereinafter "Balabanovic"). In responding to the arguments presented in Appellants' Brief on Appeal, the Examiner's Answer, on pages 12 and 13, continues to misinterpret the disclosures of Thacker and Balabanovic

I. Thacker Does Not Disclose Distilling The Intermediate Data Structure For Redisplay By Converting The Intermediate Data Structure Into A Format Usable For Reflow On An Arbitrarily Sized Display

The Examiner's Answer asserts that distilling the intermediate data structure for redisplay by converting the intermediate data structure into a format usable for reflow on an

arbitrarily sized display corresponds to pouring text into slots created in the document. This assertion is incorrect.

Thacker, at col. 9, lines 6-50 and Figs. 3(B) and 3(C) discloses pouring. In particular, Fig. 3(B), element 306, discloses determining a maximum number of words that can fit into a current slot. Thus, Thacker teaches merely determining the maximum number of words that can fit into a current slot of a predetermined or pre-established size. Thacker would not have suggested any converting of the intermediate data structure into a format usable for reflow on an arbitrary sized display. Thacker merely teaches determining how much text and graphics would fit onto a single page so that the position of page breaks can be marked (see e.g., Fig. 3(B), elements 310 and 314).

If, as the Examiner's Answer asserts, Figs., 3(B) and 3(C) disclose rendering each page then this alleged rendering is completed, for each page, before the page breaks are inserted. Fig. 310 elements 310 and 314 show that the page break is inserted after there are no more slots remaining on a page of the electronic device. Thus, before any processing by Thacker on the original document, the document according to the interpretation in the Examiner's Answer is in a format usable for reflow on an arbitrarily sized display. By alleging that Figs. 3(B) and 3(C) disclose rendering, the conclusion drawn by the Examiner's Answer suggests that the document is already in a form usable for reflow on an arbitrarily sized display. The further processing by Thacker that the Examiner's Answer asserts allegedly discloses converting the intermediate data structure into a format usable for reflow on an arbitrarily sized display (col. 2, lines 1-19 and col.5, line 50 - col. 6, line 30) in fact converts the document to a structure formatted for a particular display.

The Examiner's Answer asserts that Thacker, at col. 2, lines 1-19 and col.5 line 50 - col. 6, line 30, discloses distilling the intermediate data structure for redisplay by converting the intermediate data structure into a format usable for reflow on an arbitrarily sized display.

These potions of Thacker disclose a process for determining how much text and graphics will fit on each page of a particular device and paginating each section of the document accordingly (see, e.g., col. 5, lines 50 -53). Thus, after this process is complete each section will be paginated to fit on that device. If the document, as now paginated, were displayed on a device with a smaller screen than that for which it is paginated, the text and graphics would not fit on a single page. Thus, the allegedly disclosed intermediate data structure would not be usable for reflow on an arbitrarily sized display. Thus, the paginated document of Thacker is for a particular display. For at least the above reasons, Thacker would not have suggested the above features.

II. Balabanovic Does Not Disclose Deconstructing A Document In A Page Image Format Into A Set Of Segmented Image Elements And Synthesizing The Deconstructed Document Into An Intermediate Data Structure That Is Convertible Into A Commercially Available Format

Balabanovic teaches at, col. 5, lines 50-62, "[a]fter image bitmaps are obtained for individual document pages, conventional document analysis techniques may be applied to extract visual features. Commercial OCR systems, such as Xerox ScanWorX® commonly provide basic layout information and character interpretations. A single document page is often decomposed into blocks of text, pictures, or figures. For text blocks, word bounding boxes and font size are estimated." Further, Balabanovic teaches at, col. 5, 63-65, "[t]he end result of document analysis is a set of feature descriptions for each document page. More specifically, for each page, a list of segmented blocks is obtained. Each segmented block is categorized as text, a picture, or line art. The location and color composition of each block are also known." Balabanovic would not have suggested converting the text in the blocks characterized as text blocks into any intermediate data structure that is convertible into a commercially available format. Balabanovic merely teaches that the page segmented into blocks and for each block the font size and word boundary are estimated. Thus, each

segmented block does not contain any information regarding the characters or words contained in the block other than the font size and the dimensions of a box that the words in that box fit. As such, the segmented blocks disclosed by Balabanovic do not contain sufficient information to be synthesized into an intermediate data structure that is convertible into a commercially available format, there is no text or image of the text in the segmented block.

Balabanovic teaches at, col. 1, lines 66- col. 2, line 5, "[a] method and apparatus for generating and displaying a visual summarization of a document is described. In one embodiment, a technique described herein extracts visual features from the document and ranks multiple pages of a document based upon at least one or more visual features of the page." Thus, Balabanovic teaches extracting visual features of the page. Further, at col. 3, lines 35-45, Balabanovic teaches "[a] set of features capable of describing the visual characteristics of a document image include textural and layout feature information. Textural features may include one or more of position, size, ink density, line spacing, color and contrast. Layout features may include one or more of configuration of blocks (e.g., column, header, etc.) or types of blocks (e.g., picture, line art, text, etc.). Features that are known to play a significant role in human perception and memory, such as, for example, surrounding space, letter height, bold, bullets, indentation, all capitalization, italics, underlining and other suitable features."

The above list of features capable of describing the visual characteristics of a document, even in its entirety, would not have suggested all of the information required to deconstruct the document into an intermediate data structure that is convertible into a commercially convertible format. It does not include, as indicated above for the segmented blocks, the text of the document. Balabanovic does not extract the text in the document, merely the type of text. Therefore, Balabanovic would not have suggested synthesizing the

deconstructed document into an intermediate data structure that is convertible into a commercially available format.

III. Thacker And Balabanovic Are Not Combinable In The Manner Suggested

The Office Action asserts that it would have been obvious to combine the scanning and OCRing of the hard copy document of Balabanovic with reflowing of text shown by Thacker. As argued above, Balabanovic does not extract the information required to synthesize the deconstructed document into an intermediate data structure that is convertible into a commercially available format. Thus, if the output described by col. 5, lines 50-62 of Balabanovic were used as the document of Thacker, Thacker would have no means to judge if text could be fit into slots. Thacker would merely have, for example, the position of a segmented text block and the font size and style within that text block. Thus, there would be no actual text to pour. As noted on page 12 of the Examiner's Answer, Thacker teaches hyphenation of words do not fit into the slots. However, given that the segmented text blocks of Balabanovic do not specify the text itself, Thacker would be unable to hyphenate words.

For at least the foregoing reasons, Thacker and Balabanovic are not combinable in the manner suggested by the Office Action.

IV. Conclusion

For all reasons stated in Appellants' Brief on Appeal, as well as the additional reasons set forth above, Appellants respectfully request that this honorable Board reverse the rejections of claims 1 and 16.

Respectfully submitted,

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